

Unit 5

Day 6

Factoring Using Imaginary Numbers

$$\frac{2}{3}x^2 - 5x + 6$$

$$\frac{1}{3}(2x^2 - 15x + 18)$$

$$\frac{1}{3}(2x - 3)(x - 6)$$

$$\frac{1}{3} \cdot ? = \frac{2}{3}$$

$$\frac{\textcircled{3}}{4}x^2 + \textcircled{3}x + \textcircled{3}$$

$$\frac{1}{4}(3x^2 + 12x + 12)$$

$$\frac{3}{4}(x^2 + 4x + 4)$$

FACTOR OVER COMPLEX:

1)

$$x^2 + 16 = x^2 - (-16) = (x - \sqrt{-16})(x + \sqrt{-16}) \\ = (x - 4i)(x + 4i)$$

FACTOR OVER COMPLEX:

$$\begin{aligned} 2) \quad 9m^2 + 32 &= 9m^2 - -32 = (3m - \sqrt{-32})(3m + \sqrt{-32}) \\ &= (3m - 4i\sqrt{2})(3m + 4i\sqrt{2}) \\ &= (3m - 4i\sqrt{2})(3m + 4i\sqrt{2}) \end{aligned}$$

FACTOR OVER COMPLEX:

3)

$$\begin{aligned} 18a^2 + 25b^2 &= 18a^2 - 25b^2 \\ &= (a\sqrt{18} - b\sqrt{-25})(a\sqrt{18} + b\sqrt{-25}) \\ &= (3a\sqrt{2} - 5bi)(3a\sqrt{2} + 5bi) \end{aligned}$$

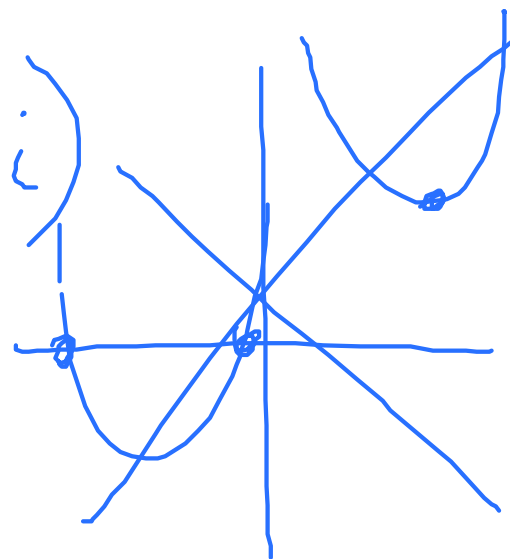
$$\begin{aligned}
 25b^2 - 18a^2 &= (5b - a\sqrt{18})(5b + a\sqrt{18}) \\
 &= (5b - 3ai\sqrt{2})(5b - 3ai\sqrt{2})
 \end{aligned}$$

FACTOR COMPLETELY USING REAL & IMAGINARY NUMBERS:

4)

$$9y^4 - 1 = (3y^2 - 1)(3y^2 + 1)$$

$$(y\sqrt{3} + 1)(y\sqrt{3} - 1)(y\sqrt{3} - i)(y\sqrt{3} + i)$$



FACTORING FOR CALCULUS:

5)

$$5(\underline{3y+8})^2 + 10(y-4)(\underline{3y+8}) =$$

$$5(3y+8)[(3y+8) + 2(y-4)]$$

$$5(3y+8)(5y)$$

$$25y(3y+8)$$

FACTORING FOR CALCULUS:

$$6) \quad \frac{(x^2 + 1)4 - (4x - 2)(2x)}{(x^2 + 1)^2} =$$

HOMEWORK:

Worksheet #4: 1-6 (bottom)

Worksheet Day 5&6: 70-79 (all)

HW Wksht 4 1-6 bottom, Wksht 70-79 all